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Response to Office Action Dated 12/06/2006

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1 A review of the claims indicates that Claims 1—50 remain in their original
2 form. In view of the following remarks, Applicant respectfully requests
3 reconsideration of the rejected claims and withdrawal of the rejections.

4 Traversal of Rejection of Independent Claim 1, 16, 32, 35, 45 and 48

5 Claims 1—8, 16—24, 32—37 and 45—50 were rejected under §102(e) as
6 being anticipated by U.S. Patent Application No. 2003/0190500, hereinafter
7 “Smedley.” In response, the Applicant submits that the Office has failed to
8 establish a *prima facie* case of anticipation and, in view of the comments below,
9 respectfully traverses the Office’s rejections.

10 The Patent Office has not specifically applied the disclosure of Smedley to
11 the recited aspects of each of the rejected claims. Instead, the Patent Office has
12 made a very brief and generalized rejection. Because there are no detailed
13 allegations of recited claims elements being shown by Smedley, the Applicant will
14 make a general showing that the Smedley reference is deficient to support the
15 Section 102 rejection. That is, the deficiencies of the Smedley reference with
16 respect to the Section 102 rejection of Claim 1 is discussed in some detail below;
17 similarly, the Smedley reference is deficient to support a Section 102 rejection of
18 Claims 16, 32, 35, 45 and 48 for at least the reasons that Smedley is deficient with
19 respect to Claim 1.

20 **Claim 1** recites an apparatus, comprising:

- 21 • a fuel cell for producing a flow of electric charges from a fuel;
22 • an electric charge counter coupled with the fuel cell, wherein
23 counted electric charges are proportional to an amount of the
24 fuel used in the fuel cell to produce the counted electric charges;
25 and
• a display coupled with the electric charge counter to show an amount
of the fuel based on corresponding counted electric charges.

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1 The Smedley reference discloses a system and method for use in
2 determining energy remaining within a fuel cell by measuring one or more
3 properties of one or more reaction products within the reaction mixture (see
4 Smedley at the Abstract, paragraphs 0003 and 0004, and other locations). Thus,
5 Smedley discloses that the mixture may be examined for voltage potential, current,
6 resistance, conductance, etc. Thus, Smedley discloses that a measurement of an
7 electrical property of the mixture may be made, and an indication of the available
8 energy of the fuel cell derived (see Smedley at 004, last 5 lines).

9 However, Smedley fails to disclose an electrical charge counter, as recited.
10 Smedley discloses current and voltage measurements, but fails to disclose any
11 system and/or method that is adapted to count electric charges. Accordingly,
12 Smedley is deficient to support a Section 102 rejection.

13 Moreover, Smedley teaches toward "measuring an electrical property of the
14 mixture" (quote from Smedley, at the Abstract). By teaching probing the mixture,
15 Smedley teaches away from coupling a charge counter to the fuel cell. That is,
16 Smedley teaches inserting a probe into the fuel cell mixture (see, for example,
17 probe 310 inserted into cell 312 in Figure 3 and 4, and probe 502 in Figure 5).
18 Accordingly, Smedley teaches away from coupling a charge counter to a fuel cell.
19 Stated another way, Smedley teaches probing the mixture, not coupling to the fuel
20 cell.

21 The Patent Office suggests that the Abstract of Smedley teaches and/or
22 discloses the elements recited by the Applicant's claim. The Applicant
23 respectfully disagrees. The Abstract discloses that Smedley "measures an
24 electrical property of a mixture" within the reaction medium. As noted above,
25

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1 Smedley specifically mentions voltage and current. However, Smedley does not
2 disclose counting electrical charges produced by the cell. Thus, Smedley does not
3 show or disclose the elements recited by Claim 1.

4 Accordingly, the Applicant submits that the Smedley reference does not
5 adequately support a Section 102 rejection. Moreover, Claims 16, 32, 35, 45 and
6 48 are allowable for at least the reasons Claim 1 is allowable. In response, the
7 Applicant respectfully requests that the Patent Office remove the rejection and
8 allow the claim.

9 Claims 2—14 depend from Claim 1 and are allowable due to their
10 dependence from an allowable base claim. These claims are also allowable for
11 their own recited features that, in combination with those recited in Claim 1, are
12 neither disclosed nor suggested in references of record, either singly or in
13 combination with one another.

14 Claims 17—31, 31—34, 36—37, 46—47 and 49—50 depend from Claims
15 16, 32, 35, 45 and 48 and are allowable due to their dependence from an allowable
16 base claim. These claims are also allowable for their own recited features that, in
17 combination with those recited in Claims 16, 32, 35, 45 and 48, are neither
18 disclosed nor suggested in references of record, either singly or in combination
19 with one another.

20 The Smedley reference is deficient to support the Section 102 rejection of a
21 number of dependent claims. By way of example, and not as an extensive
22 discussion of the dependent claims, Claim 3 is allowable for additional reasons, as
23 seen below.

24 Claim 3 recites the apparatus as recited in claim 1, further comprising a
25 fuel supply, wherein the display shows an amount of fuel remaining in the

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1 fuel supply after subtracting the amount of fuel corresponding to the counted
2 electric charges.

3 Claim 3 recites that the display shows an amount of fuel found by
4 subtracting the amount of fuel corresponding to the counted electric charges.
5 Clearly, this is not shown, disclosed, taught or suggested by Smedley, in the
6 Abstract or any other location. Accordingly, Smedley is deficient in supporting a
7 Section 102 or 103 rejection of Claim 3.

8 Similarly, Claim 4 is allowable for additional reasons, some of which are
9 seen below.

10 Claim 4 recites the apparatus as recited in claim 1, wherein the electric
11 charge counter counts electric charges by integrating the flow of electric charges
12 with respect to time.

13 Claim 4 recites aspects of integrating a flow of charges. The Applicant
14 observes that the Smedley reference does not show or disclose operation of an
15 electric charge counter counts electric charges by integrating the flow of electric
16 charges with respect to time. The Smedley reference discloses voltage and current
17 measurement, but does not disclose integration of electric charges.

18 The Patent Office points to the Abstract of Smedley, and suggests that
19 Smedley makes the disclosure. However, the Abstract is clearly deficient to
20 support the Section 102 rejection. Accordingly, the Applicant respectfully
21 requests that the rejection be removed and the claim allowed to issue.

22 Traversal of the §103 Rejections

23 Claims 9—15, 25—31 and 38—44 stand rejected under 35 U.S.C. §103(a)
24 as being unpatentable over Smedley. In response, the Applicant respectfully
25 traverses the rejection.

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1 **Claim 38** recites a count interpreter for a charge counting fuel gauge,
2 comprising:

- 3 • a count calibrator; and
4 • a fuel loss compensator.

5 The Patent Office suggests that count calibration is common knowledge.
6 The Applicant respectfully disagrees. To provide the "count calibrator" feature of
7 Claim 38, the Patent Office expressly relies on personal knowledge without
8 pointing to any specific teaching or suggestion. Specifically, the Office admits
9 that Smedley does not teach or suggest taking into account the
10 temperature/pressure differential of the fuel and its environment and/or count
11 calibration. According to 37 CFR §1.104(d)(2), "[w]hen a rejection in an
12 application is based on facts within the personal knowledge of an employee of the
13 Office, the data shall be as specific as possible, and the reference must be
14 supported, when called for by the applicant, by the affidavit of such employee, and
15 such affidavit shall be subject to contradiction or explanation by the affidavits of
16 the applicant and other persons." If this rejection is maintained on a similar basis
17 in a subsequent action, the Applicant respectfully requests the Examiner to supply
18 such an affidavit to support the assertion that a count calibrator is common
19 knowledge. Otherwise, and without additional support, it is respectfully submitted
20 the Action's conclusion does not represent the conclusion of a person of ordinary
21 skill at the time of invention.

22 **Claims 39—44** depend from Claim 38 and are allowable as depending
23 from an allowable base claim, as well as for their recitation of elements not seen in
24 the prior art of record. These claims are also allowable for their own recited
25 features that, in combination with those recited in Claim 38, are neither taught nor

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1 suggested in references of record, either singly or in combination with one
2 another.

Conclusion

3
4 The arguments presented above are intended to present the Applicant's
5 position clearly, but should not be considered exhaustive. Accordingly, the
6 Applicant reserves the right to present additional arguments to clarify the
7 Applicant's position further. Moreover, the Applicant reserves the right to
8 challenge the status as prior art of one or more documents cited in the Office
9 Action.

10 The Applicant submits that the claims as presented are in condition for
11 allowance. Accordingly, the Applicant respectfully requests that a Notice of
12 Allowability be issued. If the Patent Office's next anticipated action is not the
13 issuance of a Notice of Allowability, the Applicant respectfully requests that the
14 undersigned attorney be contacted to schedule an interview.

15
16 Respectfully Submitted,

17
18 Dated: 28 Feb 2007

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